EFFECTIVENESS OF YOGIC PRACTICES ON PHYSICAL PHYSIOLOGICAL AND PSYCHOLOGICAL VARIABLES OF KENDRIYA VIDYALAYA STUDENTS

SHORT SYNOPSIS

Submitted in partial fulfillment of the requirement of the degree of

DOCTOR OF PHILOSOPHY

To

Lakshmibai National Institute of Physical Education Gwalior
(Deemed to be university)

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CERTIFICATE

I hereby declare that the **synopsis " EFFECTIVENESS OF YOGIC PRACTICES ON PHYSICAL PHYSIOLOGICAL AND PSYCHOLOGICAL VARIABLES OF KENDRIYA VIDYALAYA STUDENTS"** being submitted in partial fulfillment of the requirement for the degree of Doctor of Philosophy in Yogic science under the Department of Yogic Sciences, Lakshmibai National Institute of Physical Education (LNIPE), Gwalior, Madhya Pradesh, India during the academic year 2022.

It is a bonafide record of original work carried out under the supervision **of Dr. DILEEP TIRKEY** and the co-supervision of **Dr. NIDHEESH YADAV** has not been submitted in full or part to any other university or institute for a degree or diploma.

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ABSTRACT

The ancient science of Yoga is a holistic discipline aimed at harmonizing the physical, physiological, psychological, and spiritual aspects of human life. In the current era, school-going children face significant psychological, physiological, and physical challenges due to academic pressure, sedentary lifestyles, and reduced self-awareness. This study is designed to explore the effectiveness of specific yogic practices on enhancing the physical fitness, physiological efficiency, and psychological well-being of students aged 13 to 18 years from Kendriya Vidyalayas.

A 12-week intervention will be conducted on a sample of 200 students, with the experimental group receiving structured yogic training, while the control group follows their usual routine. The research will examine changes in physical fitness, selected physiological variables and psychological parameters. The study aims to contribute to the integration of yoga into school curricula for overall student development and improved academic performance. The findings may also serve as a basis for implementing yoga-based remedial and preventive health programs in educational institutions.

Key-word:- Yoga, Mental Health, Ashtanga, Mental Fatigue, Flexibility.

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CHAPTER-I

Introduction

Yoga is a very ancient field that tries to balance human health, which may be related to mental, physical, emotional, and spiritual dimensions. Yoga is a primal practice for focusing, concentrating, breathing, and postures that carry energy, tranquility, and health, and connect the individual with oneself. In another language, Sanskrit, yoga is named _union ‘or yoke ‘, and it originated in 4500 BC. This can be performed and tried by anyone regardless of gender (female & male) and age (children, old age, adults, etc.). Therefore, the importance and need for yoga must be felt in every sphere of life. It develops the whole personality of an individual, including physical, mental, moral, and intellectual.

Yoga is a historical foundation for health and happiness in life. It is very helpful for the harmony of the mind and the body. Yoga is a way of achievingphysical and mental well-being. It contemporizes the function of the muscle and the mind. It is a path that can lead us toward health.

> “Where there is yoga, there is prosperity, success, freedom, and bliss.”
>
> -B.K.S. Iyengar

So, this study was conducted to know the effects of specific yogic practices on school-level students' physical, physiological, and psychological variables.

Yoga is getting more and more common as an add-on therapy to improve the quality of life for countless people. In a survey, groups of 135 persons were formed and given the task of six months for doing yoga, walking, or controlling a group. Those practicing yoga developed their quality of life significantly, 9 apart from it, the mood and fatigue too became favorable, compared to the activities of the people of the other groups.

In the Yoga Sutras, the ancient sage Patanjali outlined the eightfold path (Ashtanga) to attain self-realization and inner peace. These eight steps are holistic guidelines for ethical conduct, self-discipline, physical health, and spiritual growth.

1. Yama (Moral Restraints / Social Ethics)

These are universal ethical principles that guide our interaction with the external world:

- **Ahimsa** (Non-violence)
- **Satya** (Truthfulness)
- **Asteya** (Non-stealing)
- **Brahmacharya** (Celibacy or moderation)
- **Aparigraha** (Non-possessiveness)

2. Niyama (Personal Disciplines / Inner Ethics)

These are disciplines for self-regulation and inner growth:

- **Shaucha** (Purity)
- **Santosha** (Contentment)
- **Tapas** (Austerity or inner fire)
- **Svadhyaya** (Self-study or study of scriptures)
- **Ishwarapranidhana** (Surrender to a higher power)

3. Asana (Posture)

Physical postures that cultivate discipline and focus, making the body a fit vehicle for meditation. Traditionally, asanas were meditative postures for stillness and comfort.

4. Pranayama (Breath Regulation)

Control and regulation of breath to expand vital life energy (prana) and bring harmony between body and mind.

5. Pratyahara (Withdrawal of the Senses)

The conscious withdrawal of the senses from external objects, leading the awareness inward.

6. Dharana (Concentration)

Focused attention or single-pointed concentration on a particular object, sound, or thought.

7. Dhyana (Meditation)

Uninterrupted flow of concentration; meditative absorption in the object of focus, leading to stillness of the mind.

8. Samadhi (Enlightenment or Blissful Absorption)

The final stage of spiritual evolution; a state of oneness with the object of meditation, transcending the self and ego. It is pure consciousness, peace, and bliss.

If these eight stages of yoga are followed and practiced by man, there would be an all-around development in life-physically, intellectually, and spiritually, and man would attain physical and mental equanimity.

During the last few decades, our present educational system has failed to achieve the ultimate aim of education. Today, the main aim of the students is to collect degrees and diplomas only. Most of the youngsters and children have become patients due to different conditions of life and work culture. They are not spared from the stress and strains of life. They live in a hurry-up world of busy parents, incessant lessons, video games, and irregular eating habits. They are not aware of their mental and physical fitness

In this fast-paced world, psychological problems that concern school-going children must be addressed. The Association for Children's Mental Health has reported that one out of five children and youth has a diagnosable emotional, behavioral, or mental disorder. Some psychological problems the students faced are depression, the feeling of being overwhelmed, feelings of hopelessness and powerlessness, a decrease in self-care, avoiding social interactions, anxiety, and high-pressure work. Many students experience mental health difficulties that interfere with their studies and negatively impact their academic performance. Yogic exercises are good for reducing depression and maintaining mood of the student. They are directly linked to brain and cognitive benefits. Yoga is an easyand healthy way of uplifting the mind and keeping the mind active. By doing yoga practice, the students preserve the capacities of the brain, maintain peace and well-being. Yoga practice enables the practitioner to move in a controlled manner into modifiable physical postures, concentrating initially on relaxing their body, breathing rhythmically, developing awareness of the sensations in their body, and thoughts in their mind. In addition to the physical benefits from sequentially completing the postures, the breathing (pranayama) andmeditation exercises included in yoga are practiced to calm, focus the mind, and develop greater self-awareness. Yoga improves the psychological health of the students than other exercises. Yoga is a science of self-development and self-realization that helps to develop the students' full potential. So, providing yoga interventions will be effective for the students to improve their psychological health. Yoga naturally increases children's ability to concentrate. Yoga helps students with attention problems, stay on task, and focus on learning. The improvements in students'

concentration that come with regular yoga practice allow for more effective learning in the classroom. The school students have to develop their cognitive powers for their better future. The thinking ability and good decision-making skills are needed for school students.

STATEMENT OF THE PROBLEM

The statement of the problem will be stated as "**Effectiveness of yogic practices on physical, physiological, and psychological variables of Kendriya Vidyalaya Students"**

SIGNIFICANCE OF THE STUDY

The present investigation works with the purpose of promoting yogic activity programs in educational institutions, in particular, and in society in general.

1. This study will also be useful for bringing physiological development along with psychological features, which have great importance for the sociological development of an individual, and help to bring physical fitness.
2. The study will be beneficial for remedial, corrective, and rehabilitation programs for students suffering from psycho-physiological and physical fitness problems.
3. The study may make a significant contribution to enriching the existing knowledge of yoga.

OBJECTIVES OF THE STUDY

Keeping in view the need for background and purpose of the study investigationlisted the following major objectives are listed-

1. To determine the effect of specific yogic activities on selected physical variables of KVS students.
2. To find out the significance of variation between the experimental and control groups on selected physical variables.
3. To determine the effect of specific yogic activities on selected physiological variables of KVS students.
4. To find out the significance of the difference between the experimental and control groups on selected physiological variables.
5. To determine the effect of specific yogic activities on selected psychological variables of KVS students.

6. To find out the significance of the difference between the experimental and control groups on selected psychological variables.

HYPOTHESIS

1. There will be no effect of selected yogic activities on selected Physical variables on KVS students.
2. There will be no effect of selected yogic activities on selected Physiological variables on KVS students.
3. There will be no effect of selected yoga activities on selected psychological variables on KVS students.

LIMITATION OF THE STUDY

1. Extra practice, if any, by the subject, in the case of highly motivated individuals with a desire to perform better than others, could not be measured.
2. Personal habits of respondents and their mental state, along with their emotionalstresses and strains, could pose another limitation for the study.
3. The variation in interest, motivation, and other psychological factors of the subject during data collection may become limiting factors.

DELIMITATIONS OF THE STUDY

1. The study will be delimited to school children.
2. The age group of subjects will be from 13 to 18 years.
3. The study will be delimited to 200 students.
4. The study will be delimited to 12 weeks of yogic training.
5. The study will be delimited to the following variables:
   i. Physical fitness variable-:
      Cardiorespiratory endurance,Body composition, Abdominal strength, and Endurance, Flexibility.
   ii. Psychological variables-: Mental fatigue.
   iii. Physiological Variables-: Vital Capacity, Inspiratory Capacity, Maximum Voluntary Volume.

DEFINITION OF THE TERMS

YOGA

- According to Panini, the term yoga can be derived from either of two roots, yujir yoga (To yoke) or to yuj samadhau (“to concentrate”).

ASHTANGA YOGA

The sagacious Yogi, Patanjali, summarized the eight limbs of yoga- eight steps on the trail of inner refinement that led to the detection of the universal of the Supreme self.

CARDIO-RESPIRATORY ENDURANCE

Cardio-respiratory stamina is the aptitude of the heart and lungs to soak up, transfer,and utilize oxygen over an unmitigated period during physical hard work.

BODY COMPOSITION

The term body composition in physical fitness is used to define the percentages of fat, bone, water, and muscle in human bodies.

ABDOMINAL STRENGTH

In the front of the abdomen, there is a large group of muscles that support the regular breathing movement and support the muscles of the spine while lifting.

FLEXIBILITY

The wide range of movement or the ability to bend in many directions.

MENTAL FATIGUE

It is a psychobiological state caused by prolonged periods of demanding cognitive activity, shown to negatively influence physical performance.

VITAL CAPACITY

After the highest inhalation, the greatest amount of air an individual can expel from the lungs is known as vital capacity.

INSPIRATORY CAPACITY

Inspiratory capacity is the maximum amount you can breathe in after you breathe out normally.

EXPIRATORY RESERVE VOLUME

The extra volume of air that can be expired with maximum effort beyond the level reached at the end of a normal expiration.

MAXIMUM VOLUNTARY VOLUME

It is defined as the maximal volume of air that can be moved by voluntary effort in one minute.

CHAPTER-II

REVIEW OF THE RELATED LITERATURE

(Kuniko Yamamoto-morimoto, 2019). This study aimed to evaluate the effects of 8 weeks of asana and asana with pranayama lessons to clarify the influence of two different combinations of yoga practice on physical and respiratory function in healthy inactive middle-aged people. The 8-week yoga intervention for healthy inactive middle-aged people improved the overall respiratory and physical functions, and the inclusion of pranayama possessed the added benefit of improving inspiratory muscle strength and global body flexibility.

(Hernandez, 2018) This research bolsters the advantages of contemplation, responsible for consideration and feelings. The examination's discoveries demonstrate that psychological experiences with Sahaja Yoga contemplation are related to the advancement of neural systems and zones that they are significant for the control of consideration and emotions. In conclusion, the study's findings show that mental silence experienced through Sahaja Yoga meditation is associated with the development of neural networks and areas that are crucial for the control of attention and emotions, all of which may have a positive impact on mental health directly and on physical health indirectly.

(James Ives, 2018) Conducted a study on new research to examine how yoga benefits older people with multiple long-term health conditions. The discovery of the project sustained the possibility of carrying out the current larger-scale study and gave heartening preliminary data on the results of the yoga Programme on physical function and quality of life.

(Kluwer, 2018) Directed an examination on Mind-body treatments, which gives a new way to deal with and handle young anxiety. The review identified three studies of hypnosis techniques to reduce stress in adolescents, including a tele-hypnosis intervention to reduce anxiety-related absences in high school students. Mind-body therapies can help to meet the "dire need" for affordable and accessible mental health strategies in pediatric primary care.

(Cahn, 2017) Surveyed yoga as well as meditation practices and stated that these practices increase resilience and well-being. After examining the effects of a thorough yoga regimen for 12 weeks and deliberation move away, the investigators observed that the exercises optimistically influenced BDNF signaling, the cortisol awakening response (CAR) and immunological markers, and additionally developed subjective well-being.

(Tanwar, 2017) Patients who have heart problems may benefit from being involved in both aerobic as well as yoga exercises. Heart-disease patients who practice yoga in addition to aerobic exercise experience twice the reduction in blood pressure, body mass index, and cholesterol levels when compared to patients who practice either Indian yoga or aerobic exercise alone.

(Garg S, 2016) carried out research on the impression of Slow Breathing Pranayama on Heart Rate Variability. To highlight the outcome of slow breathing
pranayama on sympatho-vagal balance. The study comprised thirty medical students, both male and female, of the age group 17-21 years. Pupils practiced anulom-vilom pranayama for twenty-five minutes every day for three months. Heart Rate Variability (HRV) is calculated before, at 6 weeks, and 12 weeks of pranayama practice. Parameters contained in the study were High Frequency Component (HF), Low Frequency Component (LF), and LF/HF. There is a significant increase (p-value).

CHAPTER-III

METHODOLOGY AND TOOLS OF RESEARCH

This chapter outlines the methodology and procedures adopted for conducting the research in a professional and justified manner. The process was determined after careful and critical consideration of various aspects aligned with the objectives of the study.

DESIGN OF THE STUDY

A total of 200 subjects were initially selected using random sampling**.** The Mindful Attention Awareness Scale (MAAS) was administered to all 200 participants. From this group, 80 subjects who scored lower on the Mindful Attention Awareness Scale (MAAS) were selected through purposive sampling**.**

These 80 subjects were then randomly divided into two groups:

- **Experimental Group**: 40 subjects
- **Control Group**: 40 subjects

Both groups underwent pre-testing for selected variables. The experimental group participated in a structured 12-week Ashtanga Yoga training program, while the control group remained under observation without any intervention. After 12 weeks, post-testing was conducted for both groups using the same variables.

SELECTION OF VARIABLES AND CRITERION MEASURES

DEPENDENT VARIABLE

1. **PHYSICAL FITNESS VARIABLE**

Component	Test	Equipment/Facility	Purpose
Cardiorespiratory Endurance	Distance Run	400m or 440-yard Track	Measure maximal functional capacity and cardio-respiratory endurance
Body Composition	Skinfold Measurement	Skinfold Calipers	Assess body composition

Component	Test	Equipment/Facility	Purpose
Abdominal Strength and Endurance	Modified Sit-ups	Stopwatch, Mat, Floor, Score Sheet	Measure abdominal muscle strength and endurance
Flexibility	Sit and Reach	Sit and Reach Box	Evaluate flexibility of lower back and hamstrings

2. PHYSIOLOGICAL VARIABLES

Component	Test	Equipment	Unit
Vital Capacity	Spirometry	Spirometer	Liters (L), L/min
Inspiratory Capacity	Spirometry	Spirometer	Liters (L)
Expiratory Reserve Volume	Spirometry	Spirometer	Liters (L)
Maximum Voluntary Volume	Spirometry	Spirometer	Liters/Min (L/min)

3. PSYCHOLOGICAL VARIABLES

COMPONENT	TEST	SCALE/MEASURE
MENTAL FATIGUE	MENTAL FATIGUE TEST (DR. VIVEK BHARGAVA)	LIKERT FIVE-POINT SCALE

INDEPENDENT VARIABLE

The independent variable is the **Ashtanga Yogic Training Program**, which includes:

- **Asanas**
- **Pranayama (Ujjayi)**
- **Meditation (Trataka)**

TRAINING PROGRAMME (EXPERIMENTAL GROUP)

- **Group A (Experimental)**: Received yogic training

- **Group B (Control)**: No yogic intervention
- **Duration**: 12 weeks
- **Frequency**: Daily (except Sundays and gazetted holidays)
- **Time**: 9:00 AM to 10:00 AM

YOGA TRAINING STRUCTURE

Weeks	Ashtanga Activity	Repetitions	Duration (min)
1–4	Gayatri Mantra (Opening & Closing)	6	20
	Surya Namaskar	2	15
	Asanas	3	15
	Pranayama (Ujjayi)	3	5
	Meditation (Trataka)	-	5
5–8	Same as above with increased time/reps		
9–12	Same as above with maximum duration		

ASANAS PRACTICE PROGRESSION

- Progressed from 15 to 45 minutes across 12 weeks.
- Covered various traditional postures from basic to advanced in sequential order.
- Emphasis was placed on alignment, breath control, and holding capacity.

TABLE: ASANAS PRACTICE PROGRESSION (WEEK-WISE DISTRIBUTION)

Week	Duration	Focus	Asana Level	Key Asanas Practiced
1–4	15 minutes	Introduction, alignment, posture	Basic	Utthita Trikonasana, Padangusthasana, Padahastasana, Prasarita Padottanasana B & C, Dandasana
5–8	30 minutes	Stability, breath coordination	Intermediate	Parivrtta Trikonasana, Utthita Parsvakonasana, Puvottanasana, Marichyasana C, Paschimottanasana
9–12	45 minutes	Endurance, deep stretch, balance	Advanced	Halasana, Salamba Sarvangasana, Virabhadrasana I & II, Bhujapidasana,

Week	Duration	Focus	Asana Level	Key Asanas Practiced
				Kurmasana, Sirsasana

PROCEDURE OF DATA COLLECTION

The data was collected at two stages:

1. **Pre-Test**: Conducted before the start of the yoga training.
2. **Post-Test**: Conducted after 12 weeks of training.

All measurements were recorded systematically using standardized tools and procedures. Both control and experimental groups underwent the same pre- and post-test evaluations.

STATISTICAL ANALYSIS

The following statistical methods were employed:

- **Paired t-test**: To compare **pre-test and post-test** scores within the experimental and control groups.
- **Independent t-test**: To compare the **post-test** scores between experimental and control groups.

All tests were computed at a **significance level of 0.05** ($p < 0.05$).

EXPECTED OUTCOME

1. Improvement in Physical Fitness:

Students undergoing yogic training are expected to show significant enhancement in cardiorespiratory endurance, abdominal strength, body composition, and flexibility compared to the control group.

2. Positive Physiological Adaptations:

The experimental group is anticipated to demonstrate improved respiratory parameters such as increased vital capacity, inspiratory capacity, and maximum voluntary volume.

3. Enhanced Psychological Well-being:

Yogic practices are expected to reduce mental fatigue and improve attention, focus, and emotional balance among students.

4. Holistic Development:

The study is likely to establish the effectiveness of yogic practices in fostering integrated development—physical, mental, and emotional—among adolescents.

5. Educational and Policy Implications:

The research may support the inclusion of yoga as a regular feature of school education, promoting healthier lifestyles and coping mechanisms for stress among school children.

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